Denali Commission Project #1601 Progress Report
Reality Spectrum for Maritime Distance Delivery Training
2020 Fourth Quarter: 10/01/2020* to 12/31/2020

* Some reference to October 2020 was made in the last Progress Report

1. Narrative Summary

Having acquired, configured, and deployed the necessary technologies and related software in the Third Quarter of 2020 we focused on the development of environments, environmental processes, and environmental objects in the Fourth Quarter. This "environmental" focus is in-line with the development plan we submitted to AVTEC and the Denali Commission.

We had four primary goals in this phase of development.

1. Use the AMTC's existing instructional format as the basis for developing a next generation version. This will allow AMTC to make a smoother transition from one modality to another. We will also be able to learn lessons from a existing—and successful—presentation modality.
2. Recreate realistic maritime conditons in the areas of navigation, bathymetric depths, existing coastlines, littoral waters, and existing ports or landings. And ALL of these areas must be Alaska-based or Alaska-centric
3. Recreate realistic maritime conditons in the areas of waves and weather
4. Model and utilize the types of tugs, barges, ships, and other maritime assets commonly encountered in Alaska and other Arctic locations.

2. Accomplishments to Date

- We researched and tested virtual solutions for ship-centric movement through typical Alaska waters. The captures in the *Media* section of this report show some of those experiments. These proved successful and were incorporated into our application. Just as terrain changes as the vessel moves, the visual "sphere" that the Captain experiences also moves. This is the most realistic way to portray what is happening and allows navigational and sailing problems to arise spontaneously while still being based in the physical reality encountered.

- It was our intention from the beginning, to base the environments trainees would encountered on real locations, real conditions and real situations. To this end we researched and experimented with populating our scenarios with real bathymetic dimensions and real shorelines.

- We searched to find an existing location that had as many of the situations and conditions that we might encountered as we progressed. **Dutch Harbor** proved to be the prime candidate. This was due, in part, to the wealth of information we encountered as well as its littoral diversity. We dove into a wide range of sources. This resulted in our being able to model and situate a number of potential training scenarios.

- We continue to work on the various maritime assets we will be using to populate our scenarios. The obvious ones are tugs, barges, ships, etc. But we are also focusing on all of the various "tools of the trade" those working on board will encounter. It is our intention to create scenarios that not only train those on the bridge but those working throughout the ship, or those moving between or on board other assets such as barges.

- One of our interns, a High School student from Fairbanks has researched, developed and is continuing to test and improve, a bathymetric charting display. Similar to those popularly used, this application can generate novel bathymetic scenarios quickly display them to prospective trainees. Talk about workforce development. Here is home grown talent getting the opportunity to do amazing work while still in High School.

3. On Schedule

As discussed in the last progress report, the COVID health crisis continues to impact Alaska, its companies and communities and therefore Designori's work schedule. From a strictly chronoligical measure we are behind schedule. However, when measured by the amount of work we are engaged in and the number of in-project development points reached, we have been making good progress. In fact, given the necessity to solve problems presented with an innovative, we have been able to develop effective alternatives which may, in the long run, prove to be more effective than our original approach. We have not yet been able to arrange a tug/ship assist "ride along". Given no likelihood of live reality capture onboard the tugs in the near future, we have switched over to inviting key personnel from the tug to visit Designori's Studio in midtown Anchorage. We plan on providing them with sufficient training to be the ones to effect the onboard reality capture. Finally, given the strides we have made with the base application and the extended environments, I anticipate that we will begin progressing faster than scheduled in the near future.

4. On Budget

Yes, the project is within budget. The first two phases of the project were anticipated to take a larger share of the budget than the remaining three. We only spent the initial equipment $13,000 in the third quarter and a bit over $18,000 in this quarter. This puts us under budget by a small percentage. As I stated in the *Schedule* section, we anticipate picking up the pace in the first quarter of 2021 and even more so in the second quarter.

5. Project Problems & Actions

Other than the issues with COVID the project has been thankfully free of problems. Not a problem per se for the project, but one I anticipate in regards to future Reality Technology growth in Alaska, is the severe lack of personnel trained in or even familiar with them. Designori is therefore seeking out alternative avenues to training such as internships.